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## Patient Expectations and Patient-Reported Outcomes in Surgery: A Systematic Review

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### Abstract

**Background**—Recent events in healthcare reform have brought national attention to integrating patient experiences and expectations into quality metrics. Few studies have comprehensively evaluated the effect of patient expectations on patient-reported outcomes (PROs) following surgery. The purpose of this study is to systematically review the available literature describing the relationship between patient expectations and postoperative PROs.

**Methods**—We performed a search of the literature published prior to November 1, 2012. Articles were included in the review if 1) primary data were presented 2) patient expectations regarding a surgical procedure were measured 3) PROs were measured, and 4) the relationship between patient expectations and PROs was specifically examined. PROs were categorized into five subgroups: satisfaction, quality of life (QOL), disability, mood disorder, and pain. We examined each study to determine the relationship between patient expectations and PROs as well as study quality.

**Results**—From the initial literature search yielding 1,708 studies, 60 articles were included. Fulfillment of expectations was associated with improved PROs among 24 studies. Positive expectations were correlated with improved PROs for 28 (47%) studies, and poorer PROs for 9 (15%) studies. Eighteen studies reported that fulfillment of expectations was correlated with improved patient satisfaction, and 10 studies identified that positive expectations were correlated with improved postoperative QOL. Finally, patients with positive preoperative expectations

reported less pain (8 studies) and disability (15 studies) compared with patients with negative preoperative expectations.

**Conclusions**—Patient expectations are inconsistently correlated with PROs following surgery, and there is no accepted method to capture perioperative expectations. Future efforts to rigorously measure expectations and explore their influence on postoperative outcomes can inform clinicians and policy-makers seeking to integrate PROs into measures of surgical quality.

## Keywords

Expectations; Outcomes; Outcome assessment

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In the United States, surgical procedures account for 40% of our total healthcare expenditures, and identifying effective measures of surgical quality is a top priority<sup>1-4</sup>. Although traditional quality indicators, such as hospital readmissions rates or length of stay, can be easily captured by administrative data, these outcomes may not be appropriate for all types of procedures. For example, for high-risk procedures, such as lung resection or pancreatectomy, mortality rates and procedural volume can distinguish surgeon and hospital performance<sup>5,6</sup>. However, for common, low-risk procedures, these endpoints are exceedingly rare and not sensitive enough to distinguish variation in patient outcomes<sup>7</sup>. Instead, patient-reported outcomes (PROs), such as health-related quality of life and disability, can illuminate differences in treatment effectiveness. In 2010, the Patient Centered Outcomes Research Institute was funded by the Affordable Care Act, and established PROs as a central component of healthcare policy and reform<sup>8-10</sup>. Therefore, understanding the factors that influence PROs following surgery can inform strategies to improve the quality of surgical care.

Patients enter each decision for surgery with expectations regarding the effectiveness of the procedure and their postoperative recovery. Their ability to accurately predict these outcomes is the foundation of an informed decision. However, most patients have inaccurate perceptions of both disease conditions and surgery. For example, women incorrectly estimate the quality of life and stigma associated with surgery for breast cancer<sup>11</sup>. Similarly, patients with kidney disease often overestimate quality of life following renal transplantation, and the general public predicts poorer quality of life associated with spinal cord injury or colostomy creation than patients report<sup>12-17</sup>. Physicians also have difficulty predicting patient recovery and adaptation following surgery<sup>18</sup>. For example, physicians often underestimate quality of life following colorectal surgery, such as colostomy creation or total colectomy<sup>19,20</sup>. These misconceptions can undermine the process of informed consent, erode patient trust in their physicians, and exacerbate medico-legal tensions. Therefore, understanding the effect of patient expectations on postoperative experiences and outcomes can identify communication barriers between patients and surgeons and improve the decision-making process for patients facing surgery.

To date, the influence of preoperative expectations on PROs following surgery has not been systematically reviewed, and few physicians routinely address patient expectations prior to surgery<sup>21</sup>. Therefore, the purpose of this study is to examine the literature describing the relationship between patient expectations and 5 specific PROs following surgery:

satisfaction, quality of life, disability, mood disorders, and pain. We hypothesize that patients whose preoperative expectations are sufficiently met following surgery will experience improved outcomes compared with patients whose experience falls short of their expectations.

## METHODS

### Data sources

A search of the available English language literature published prior to November 1, 2012, was performed by two authors (EM, ES) using the Ovid Medline database. The search was performed using the following Medical Subject Heading (MeSH) terms: *patient\** and *expectation\**. The asterisk indicates a truncation function in the search engine, used to include all variations of the search term (e.g patient, patients). We further restricted our search to include only articles that contained *patient\** in the title or abstract and *expectation\** in the title. Within the database, we included both indexed and non-indexed citations, and reviewed each article to determine study eligibility and quality.

### Study Selection

Articles were included in the review if they met the following inclusion criteria: 1) primary data were presented for adult patients 2) patient expectations regarding a surgical procedure were measured preoperatively and postoperatively 3) PROs were measured preoperatively and postoperatively, and 4) the relationship between patient expectations and PROs was specifically examined. Articles that were not published in the English language were excluded, as well as studies not including primary data (editorials, commentaries, and review papers).

### Data Abstraction

The data from each included article were abstracted using a standardized abstraction form. This form included the number of subjects, surgical procedure, method for measuring patient expectations, method of measurement and results of objective outcomes, method of measurement and results of PROs, methodological concerns, and quality assessment. We specifically examined each article to determine the relationship between expectations and PROs, which included either a description of fulfillment of expectations (the match between preoperative expectations and postoperative PRO) and/or an empiric measure of expectation and an empiric measure of PROs.

### Assessment of Study Eligibility and Quality

The articles were screened in three phases using our predetermined inclusion and exclusion criteria. The first screen included a review of the titles, and the second screen examined study abstracts. Articles were included if we were unable to determine whether they met the inclusion criteria based on the title or abstract screen. Finally, a full text screen was conducted of the remaining articles to determine if the inclusion criteria were fully met.

After the screening process was complete, we separated the articles into two subgroups based on how the authors measured outcomes: 1) articles reporting PROs such as

satisfaction, quality of life or disability and 2) articles reporting objective outcomes such as mortality rate, independent observer's assessment, or visual acuity. Within each subgroup, we examined the conclusions that each paper found regarding the relationship between patient expectations and outcomes. Based on these findings, we evaluated the overall relationship between expectations and outcomes for each subgroup.

For all of the included studies we assessed the quality of the study using a modified set of criteria for evaluating cohort studies from the US Preventative Services Task Force (USPSTF).<sup>22</sup> At least one author assessed the quality of each included study based on the above criteria, and all disagreements were resolved by consensus among authors.

## RESULTS

The initial literature search included 1,708 studies (Figure 1). After screening the titles, abstracts, and full texts, 60 articles were included in this review, encompassing 13 different surgical specialties (Online resources 1 & 2). Orthopedic surgery studies were most common (28 articles), as well as neurosurgery (6 articles) and cardiology (5 articles). In total, this systematic review includes 13,806 patients, with an average of 234 patients in each study.

### Patient expectations

Methods used to measure patient expectations varied widely among studies (Appendix 1). Of the 60 studies, only 10 (17%) used previously validated surveys. For example, the Musculoskeletal Outcomes Data Evaluation and Management System (MODEMS) expectation survey measures patient expectations regarding pain relief, daily activity, sleep comfort, return to work, ability to exercise, and future disability<sup>23</sup>. Three studies also used the Hospital for Special Surgery Knee Replacement Expectations Survey, which was validated in a group of 160 knee arthroplasty patients<sup>24</sup>. This survey consists of 20 items measuring patient expectations regarding pain relief, ability to walk, ability to engage in various activities, and lifestyle considerations. In contrast, 15 studies (25%) used qualitative methods (structured, semi-structured, or open-ended interviews) to assess patient expectations, 27 studies (45%) used ad hoc surveys, and 8 studies (13%) used modified outcomes surveys.

### Patient expectations and patient-reported outcome

Table 1 summarizes the relationship between patient expectations and PROs. Specific details regarding findings and limitations for each specific study are listed in Appendix 2. In this review, 24 (40%) studies found that the fulfillment of expectations was correlated with improved PROs, and patient expectations were not correlated with postoperative PROs in 12 (20%) studies. After quality review, 8 studies were deemed "good" quality, 41 were "fair" quality, and 11 were of "poor" quality. (Appendix 3)

Table 2 details the relationship between patient expectations and 5 specific health-related quality of life outcomes: patient satisfaction, quality of life, disability, mood disorders (ex. anxiety, depression), and pain.

**Satisfaction**—There were 36 studies (6,722 patients) that investigated the relationship between patient expectations and patient satisfaction<sup>23,25-59</sup>. Nine studies used a single question to evaluate satisfaction such as: “*How do you feel about the result of your surgery?*” Five studies used ad hoc questionnaires composed of multiple questions regarding satisfaction. For example, Brandberg et al.<sup>27</sup> used a series of 7-point scales to ask women undergoing breast reconstruction what their satisfaction was regarding breast size, softness, shape, and scarring.

Eighteen studies (2,079 patients) identified that fulfillment of expectations was associated with greater satisfaction. For example, Noble et al.<sup>46</sup> measured expectation fulfillment in knee arthroplasty patients. They found that satisfaction was highly related to fulfillment of expectations, specifically regarding activity level. Satisfaction was also related to the level of preoperative expectations. In nine studies (1,627 patients), positive preoperative expectations correlated with postoperative satisfaction. For example, De Groot et al.<sup>29</sup> used semi-structured interviews to measure expectations regarding pain, length of recovery, and return to work. Patients who expected more pain and a more difficult recovery were less satisfied compared with patients with expectations of an easier recovery. In contrast, eight studies (1,071 patients) found that patients with positive preoperative expectations were more likely to be dissatisfied following surgery. For example, in a study on 180 patients undergoing total hip arthroplasty, Mancuso et al.<sup>60</sup> found that patients who expected to be highly active following surgery, such as engaging in sports, dancing, travelling, and hiking, reported greater dissatisfaction. Five studies (2,678 patients) did not find a correlation between expectations and postoperative satisfaction among patients undergoing knee arthroplasty, hip replacement, and bariatric surgery.

**Quality of Life**—We identified 19 studies (5,209 patients) that examined the effect of patient expectations on postoperative quality of life (QOL)<sup>23,26,28,32,58,61-74</sup>. Thirteen studies assessed QOL using the Short Form-36 (SF-36) questionnaire, a generic health status survey that captures pain, disability, and psychosocial outcomes. Two studies used the EQ5D questionnaire, a standardized instrument that assesses mobility, self-care, usual activities, pain, anxiety, and depression<sup>63,65</sup>. The Schedule for the Evaluation of Individual Quality of Life questionnaire, which includes 5 visual analog-based measures regarding quality of life, was used in 1 study of 57 patients undergoing lumbar spine surgery<sup>73</sup>. The Nottingham Health Profile (NHP) was used to examine QOL among 398 patients undergoing prostatectomy<sup>64</sup>. The NHP is composed of 38 questions grouped into six domains including sleeping difficulties, energy levels, emotional reactions, pain, problems with mobility, and social interactions<sup>64</sup>. One study on patients undergoing liver transplant surgery used the Sickness Impact Profile (SIP), composed of 136 items regarding physical factors, psychosocial factors, and independence<sup>68</sup>. Two studies in patients undergoing heart transplant and total hip arthroplasty used ad hoc surveys to measure QOL<sup>28,70</sup>.

Ten studies (2,624 patients) found that positive preoperative expectations were correlated with greater QOL following surgery. For example, in a study of 125 patients undergoing rotator cuff repair, Henn et al.<sup>67</sup> identified a positive correlation between overall preoperative expectations and postoperative QOL as measured by the SF-36 and visual analog scales. Four studies (1,395 patients) found that the fulfillment of preoperative patient

expectations was associated with greater postoperative QOL. For example, in a study of 881 patients undergoing total joint replacement of the knee or hip, Gonzalez et al.<sup>65</sup> found that patients whose expectations were fulfilled reported higher QOL as measured by the SF-12 and EuroQOL. Six studies (809 patients) did not find a correlation between preoperative expectations and QOL among patients undergoing total hip arthroplasty, total knee arthroplasty, and prostatectomy.

**Disability**—Twenty four studies (8,844 patients) measured outcomes using disability, including measurements of function, mobility, symptom frequency, and activity limitation<sup>23,26,28,32,36,37,40,50,58,60,62-64,66,67,70-72,75-80</sup>. The most common instrument used to measure disability was the Western Ontario and McMaster Universities Arthritis Index (WOMAC), which was used in 7 studies in patients undergoing either hip or knee arthroplasty<sup>26,32,40,62,66,71,77</sup>. The WOMAC is a 24-item questionnaire used for measuring outcomes in patients with arthritis of the knee and hip that has 17 questions regarding functional limitation<sup>81</sup>. Two studies on patients undergoing rotator cuff repair and carpal tunnel release surgery used the Disabilities of the Arm, Shoulder and Hand questionnaire (DASH), a 30-item instrument that captures upper extremity disability<sup>36,67,82</sup>. The Oswestry Disability Index was used in 2 studies on patients undergoing lumbar and cervical spine surgery<sup>23,58</sup>. This index measures functional ability and pain among patients with lower back conditions<sup>83</sup>.

Fifteen studies (6,789 patients) found that positive preoperative expectations were correlated with better functional outcomes. For example, in a study of 908 patients undergoing total hip replacement, patients with higher preoperative expectations had better WOMAC scores in the functional and stiffness domains<sup>77</sup>. Additionally, four studies found that fulfillment of expectations was associated with lower disability scores following surgery. For example, in a study of 487 patients undergoing total hip arthroplasty, fulfillment of preoperative expectations was correlated with higher postoperative Lower Limb Core score<sup>24</sup>. One study in patients undergoing colorectal surgery found that patients with high expectations had worse postoperative disability. This study found that patients with high expectations had higher postoperative fatigue<sup>79</sup>. Five studies found no relationship between preoperative expectations and postoperative disability among patients undergoing total hip arthroplasty, total knee arthroplasty, carpal tunnel release, and lumbar disc decompression.

**Mood disorders**—Five studies (702 patients) measured postoperative mood disorders including depression, anxiety, anger, and mental distress<sup>39,61,69,70,84</sup>. Three of these studies used validated questionnaires. Chunta et al.<sup>61</sup> used the Hospital Anxiety and Depression Scale (HADS), a 14-item instrument, to measure anxiety and depression in 54 patients undergoing open heart surgery<sup>85</sup>. Leedham et al.<sup>70</sup> used the Profile of Mood States Scale (POMS), a 44-item instrument, to measure overall mood disturbance in 31 patients undergoing heart transplant surgery<sup>86</sup>. Wallace et al.<sup>84</sup> used the State Anxiety Scale, a 20-item instrument, to measure fear in a group of 121 patients undergoing laparoscopic surgery for infertility investigation<sup>87</sup>. The remaining two studies on patients undergoing hematopoietic stem cell transplant and coronary artery bypass surgery used ad hoc questionnaires to measure depression and anxiety<sup>39,69</sup>.



In three studies (206 patients), positive preoperative expectations were associated with a lower rate of mood disturbance. For example, Leedham et al.<sup>70</sup> found that patients undergoing heart transplantation who were more positive preoperatively had lower postoperative POMS scores. However, among 183 patients undergoing coronary artery bypass grafting (CABG) surgery, patients with positive preoperative expectations were more likely to experience anger and depression following surgery<sup>39</sup>. Finally, there was no correlation between preoperative expectation and postoperative mood disturbance among patients undergoing hematopoietic stem cell transplantation, and patients with high expectations had similar depressive symptoms compared with patients with low expectations<sup>69</sup>.

**Pain**—Thirteen studies (3,523 patients) examined the relationship between preoperative expectations and postoperative pain<sup>26,28,37,40,43,62,65-67,71,77,84,88</sup>. Seven studies in patients undergoing hip arthroplasty and knee arthroplasty measured pain using the WOMAC questionnaire. Three studies in patients undergoing hip arthroplasty, colonoscopy, and rotator cuff repair used visual analogue scales to measure pain. Three studies in patients undergoing laparoscopic surgery for infertility investigation, orthognathic surgery, and lumbar disc decompression surgery used ad hoc instruments<sup>37,78,84</sup>.

In eight studies (2,288 patients), positive expectations were correlated with lower postoperative pain scores. For example, in a study of 598 patients undergoing total knee arthroplasty, patients who expected minimal postoperative pain reported less pain as measured by WOMAC scores compared with patients who expected severe postoperative pain<sup>40</sup>. In contrast, one study (106 patients) found that high preoperative expectations were related to greater postoperative pain among hip replacement patients<sup>62</sup>. One study found that in a cohort of 881 patients, those who had their expectations fulfilled had lower pain scores<sup>65</sup>. Three studies did not find a correlation between expectations and postoperative pain scores. For example, in a study of 60 patients undergoing total hip arthroplasty, patients with higher expectations reported similar WOMAC pain scores compared with patients with lower preoperative expectations<sup>66</sup>.

## DISCUSSION

In this systematic review, preoperative expectations were inconsistently correlated with postoperative PROs following surgery. In the majority of studies, positive expectations were correlated with improved PROs, even if expectations were not completely met. However, a large proportion of studies reported worse PROs with fulfillment of expectations, and 20% failed to identify any relationship between PROs and patient expectations. Finally, there are few validated methods by which patient expectations are captured perioperatively, and wide variation exists in the types of instruments used to gather this data.

Previous research in consumer marketing provides insight into the mechanisms by which patient expectations could influence postoperative experiences. For example, *the expectancy-discrepancy theory* postulates that expectations create a point of reference for an individual to evaluate an event (Figure 2)<sup>89</sup>. When an outcome meets or exceeds expectations, an individual is satisfied. Although we observed a correlation between

fulfillment of expectations and higher satisfaction for some procedures, this theory may not fully explain the relationship between expectations and PROs for all patients. The *assimilation-contrast theory* suggests that an individual's evaluation of a service is affected by their expectations<sup>90</sup>. For example, when an individual's evaluation of the event is close to their expectations, the patient will adjust their evaluation to match their preoperative expectation (this is called assimilation). Conversely, when their experience does not match their expectations, the individual emphasizes this difference (contrast), which may be negative or positive (Figure 4)<sup>91</sup>. Although these theories have been described for consumers, they are also relevant for patients facing complex health-care decisions and invasive procedures.

For many conditions, several treatment options may exist with different risks, benefits, and costs associated with each choice. For example, many women with early stage breast cancer are candidates for either breast-conserving surgery with radiation or mastectomy for local tumor control<sup>92</sup>. Preference-sensitive care describes treatment in which the decision for a specific therapy should reflect patients' personal values and preferences, and relies on an informed patient reaching their decision with their physician<sup>93</sup>. Despite the recent explosion of healthcare information readily available through advances in information and computer technology, patient knowledge of their health status and understanding of surgical procedures remains uniformly low<sup>94,95</sup>. For example, less than 50% of women who undergo surgery for breast cancer are aware of differences in local recurrence rates and survival between lumpectomy and mastectomy<sup>96</sup>. These knowledge gaps not only contribute to inaccurate patient expectations, but may also undermine patient decision-making for preference-sensitive conditions.

Our study has several limitations. First, there was significant heterogeneity in the methods used to assess, quantify, and report preoperative expectations and postoperative PROs. These differences limited our ability to quantify the association between expectations and PROs across studies. Furthermore, although we relied on standard Medical Subject Heading (MeSH) terms, our accuracy is limited to how precisely the articles within search engines were indexed by these specific terms. Additional unpublished work or studies published in languages other than English were not included in this review, which may have biased our results. Finally, the majority of studies that were included in this review were observational, and we cannot comment on causality of our findings.

Despite these limitations, this study represents an first step to synthesize the literature regarding the methods available to assess patient expectations and their influence on PROs. For surgeons in practice, defining patient expectations at the time of surgical-decision making can potentially improve the process of informed consent and prepare patients for their postoperative recovery and the possibility of complications and setbacks. Decision support tools, such as informational booklets, photographs, and educational videos, can enhance communication between surgeons and patients and improve patient knowledge regarding their conditions and treatment options<sup>97</sup>. For researchers and policy-makers, developing accurate and relevant decision support systems that can be easily implemented in clinical settings can improve the quality of physician consultations and enhance patient satisfaction with their care. Furthermore, few instruments exist to capture patient



expectations, and the majority are tailored to specific conditions. Generic item instruments, such as the Patient Reported Outcome Measurement Information System (PROMIS), can capture self-reported health status, and provide a common metric across a variety of conditions.<sup>98,99</sup> Similar principles could be applied to measure patient expectations in a comparable and efficient way. Attention to capturing patient expectations and optimizing decision quality for patients facing surgery can ultimately minimize unwarranted variation for preference-sensitive conditions<sup>100</sup>.

Given recent national interest in utilizing PROs as indicators of healthcare quality, defining the effect of patient expectations on PROs after surgery is essential in order to improve patient experiences following surgery and enhance communication between surgeons and their patients. Future studies that examine patient expectations longitudinally and identify those factors that influence expectations will deepen our understanding of the complex relationship between patient perception and postoperative recovery.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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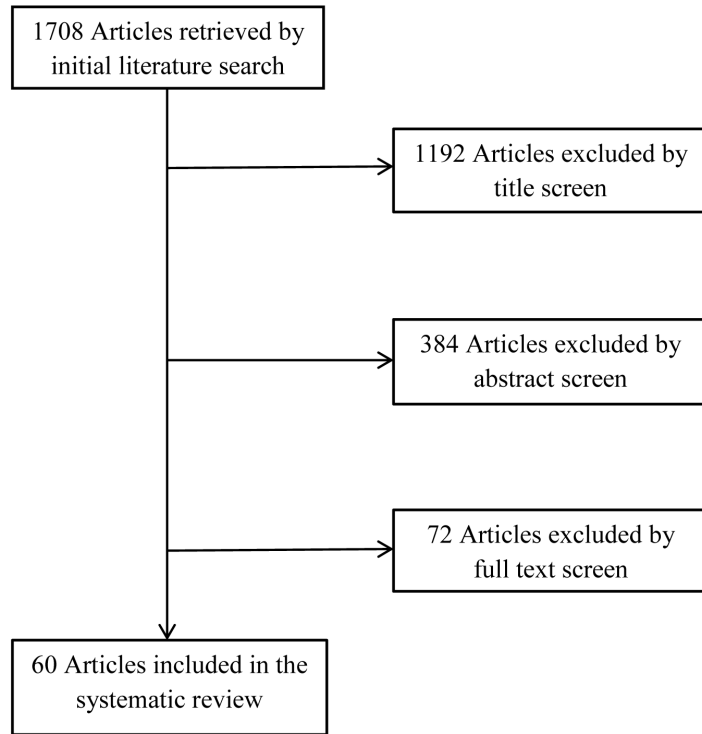
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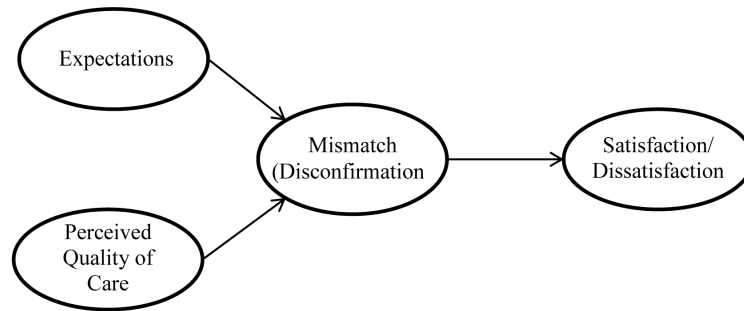
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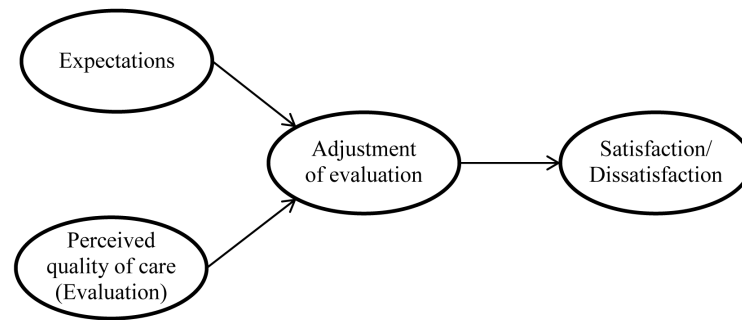


**Fig. 1.**  
Inclusion/exclusion tree.



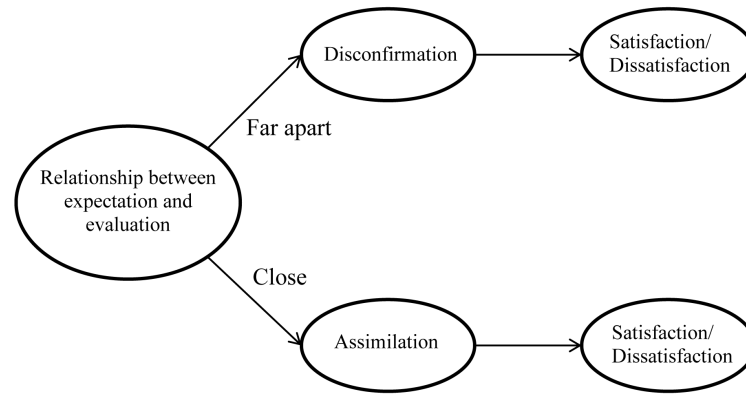
**Fig. 2.**

The Expectancy-discrepancy model. Expectations form a point of reference for the patient to evaluate the procedure. If the evaluation (perceived quality of care) is better than expected, there is positive a positive mismatch (positive disconfirmation), leading to satisfaction. If the evaluation is worse than expected, there is a negative mismatch (negative disconfirmation), leading to dissatisfaction.



**Fig. 3.**

The Assimilation model. If the individual's perceived quality of care is different from what they expected, they will adjust their evaluation to be closer to their expectation. The adjusted evaluation then leads to satisfaction or dissatisfaction with the procedure.



**Fig. 4.**

A diagram of the assimilation-contrast model. When the evaluation of the procedure is far from the individual's expectations, the patient will emphasize the mismatch between their expectations and their evaluation (disconfirmation). When the evaluation of the procedure is close to expectations, assimilation occurs, and the individual will adjust their evaluation to be in accordance with their expectations.

**Table 1**

Preoperative expectations and postoperative patient-reported outcomes.

<b>Expectation/outcome relationship</b>	<b>Number of studies</b>	<b>Percentage of studies</b>
Fulfillment of expectations related to improved postoperative PROs	24	40%
Positive expectations related to improved postoperative PROs	28	46.7%
Positive expectations related to worse postoperative PROs	9	15%
No correlation between expectations and postoperative PROs	12	20%

**Table 2**

The relationship between preoperative expectations and specific postoperative patient-reported outcomes.

Expectation/outcome relationship		Number of studies	Percentage of studies in subgroup	Percentage of all studies included in the review
<b>Satisfaction (36 studies)</b>	Fulfillment of expectations related to greater satisfaction	18	50%	30%
	Positive expectations related to greater satisfaction	9	25%	15%
	Positive expectations related to worse satisfaction	8	22.2%	13.3%
	No correlation between expectations and satisfaction	5	13.9%	8.3%
	Did not assess satisfaction	24	N/A	40%
<b>Quality of life (19 studies)</b>	Fulfillment of expectations related to greater QOL	4	21%	6.7%
	Positive expectations related to greater QOL	10	52.6%	16.7%
	Positive expectations related to worse QOL	0	0%	0%
	No correlation between expectations and QOL	6	31.6%	10%
	Did not assess QOL	41	N/A	68.3%
<b>Disability (24 studies)</b>	Fulfillment of expectations related to less disability	4	16.7%	6.7%
	Positive expectations related to less disability	15	62.5%	25%
	Positive expectations related to greater disability	1	4.2%	1.7%
	No correlation between expectations and satisfaction	4	16.7%	6.7%
	Did not assess disability	36	N/A	60%
<b>Mood disorders (5 studies)</b>	Fulfillment of expectations related to less mood disturbance	0	0%	0%
	Positive expectations related to less mood disturbance	3	60%	5%
	Positive expectations related to greater mood disturbance	1	20%	1.7%
	No correlation between expectations and mood disturbance	1	20%	1.7%
	Did not assess mood disorders	55	N/A	91.7%
<b>Pain (13 studies)</b>	Fulfillment of expectations related to less pain	1	7.7%	1.7%
	Positive expectations related to less pain	8	61.5%	13.3%
	Positive expectations	1	7.7%	1.7%



Expectation/outcome relationship		Number of studies	Percentage of studies in subgroup	Percentage of all studies included in the review
	related to greater pain			
	No correlation between expectations and pain	3	23.1%	5%
	Did not assess pain	47	N/A	78.3%

**Table 3**

Expectations and objective outcomes in surgery patients.

<b>Expectation/outcome relationship</b>	<b>Number of studies</b>	<b>Percentage of studies in subgroup</b>	<b>Percentage of all studies included in the review</b>
Fulfillment of expectations related to improved objective outcomes	6	75%	10%
Positive expectations related to improved objective outcomes	2	25%	3.3%
Positive expectations related to worse objective outcomes	0	0%	0%
No correlation between expectations and objective outcomes	0	0%	0%